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PATE... COOPERATION TREATY

PCT

NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Assistant Commissioner for Patents
 United States Patent and Trademark
 Office
 Box PCT
 Washington, D.C.20231
 ETATS-UNIS D'AMERIQUE

in its capacity as elected Office

Date of mailing (day/month/year) 23 October 2000 (23.10.00)	
International application No. PCT/EP00/01738	Applicant's or agent's file reference
International filing date (day/month/year) 28 February 2000 (28.02.00)	Priority date (day/month/year) 05 March 1999 (05.03.99)
Applicant AHRENS, Hartmut et al	

1. The designated Office is hereby notified of its election made:

☒ in the demand filed with the International Preliminary Examining Authority on:

15 September 2000 (15.09.00)

☐ in a notice effecting later election filed with the International Bureau on:2. The election ☒ was☐ was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No.: (41-22) 740.14.35	Authorized officer R. E. Stoffel Telephone No.: (41-22) 338.83.38
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PATE... COOPERATION TREATY

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 34, chemin des Colombettes
 1211 Geneva 20, Switzerland

Facsimile No.: (41-22) 740.14.35

Authorized officer

R. E. Stoffel

Telephone No.: (41-22) 338.83.38

REPLACED BY
ART 34 AND 35

5

R_1 and R_2 are independently selected from linear or branched, saturated or unsaturated C_{6-22} hydrocarbyl,

R_3 is nothing or C_{1-20} hydrocarbyl,

R_4 is C_{1-6} alkyl, C_{1-6} alkylene, or independent Z,

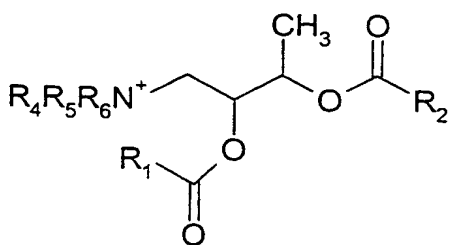
5 R_5 is H, C_{1-6} alkyl, independent Z, or the residue of the quaternizing agent, such as C_{1-30} alkyl or alkenyl, preferably, C_{1-7} alkyl or alkenyl,

R_6 is C_{1-6} alkyl or independent Z,

n is 1 or 2, and

10 X^- is an ion selected from Cl^- , Br^- , I^- , F^- , $CH_3SO_4^-$, $C_2H_5SO_4^-$, $H_2PO_4^-$, HPO_4^{2-} , PO_4^{3-} , $H_2PO_3^-$, HPO_3^{2-} , $H_2PO_2^-$, HPO_2^{2-} , nitrate⁻, formate⁻, acetate⁻, propionate⁻, tartrate⁻ and benzoate⁻, wherein the total charge of the anions equals the total charge of the cations. The compounds may be used after purification and/or isolation. Preferably, they are part of a composition comprising more than one of the compounds of formulae I-IV and isomers thereof, since extensive
15 isolation steps for the individual compounds can then be refrained from. Purification may include a bleaching and/or adsorption step to convert and/or remove chemicals that cause discolouration.

Preferred are compounds of formula (I), given in full below



X^- (V)

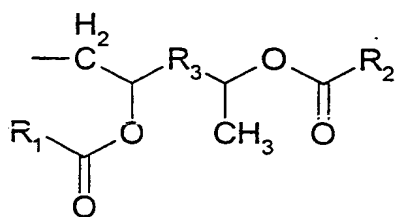
or isomers thereof, wherein R_1 - R_6 have the meaning as presented above.

More preferably, the compounds of the above formulae I-IV, or the isomers thereof, are of the formula wherein R_1 and R_2 are C_{12-18} . Even more preferably,

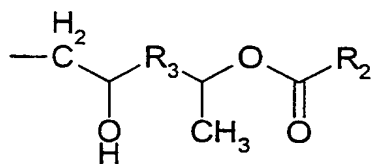
25 R_1 and R_2 have a carbon distribution within the range such as can be found in

Claims

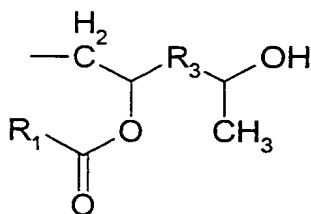
1. Quaternary ammonium compounds of the formula $R_4[R_5R_6N^+Z]_n X^-$,
 wherein Z is covalently bonded to the nitrogen atom and selected from the
 group of the following formulae (I-IV)



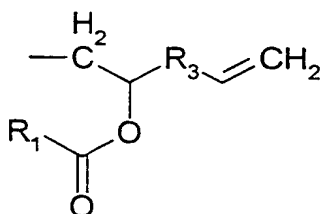
(I),



(II)



(III),



(IV),

10

and the isomers of any of these compounds, wherein

R_1 and R_2 are independently selected from linear or branched, saturated or unsaturated C_{6-22} hydrocarbyl,

R_3 is nothing or C_{1-20} hydrocarbyl,

R_4 is C_{1-6} alkyl, C_{1-6} alkylene, or independent Z,

PTO/PCT Rec'd. 05 SEP 2001

PATENT COOPERATION TREATY

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From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

To:

SCHALKWIJK, Pieter Cornelis c.s.
AKZO NOBEL N.V.
Intellectual Property Department
(Dept. AIP)
P.O. Box 9300
NL-6800 SB Arnhem
PAYS-BAS

PCT

NOTIFICATION OF TRANSMITTAL OF
THE INTERNATIONAL PRELIMINARY
EXAMINATION REPORT

(PCT Rule 71.1)

Date of mailing
(day/month/year)

09.07.2001

Applicant's or agent's file reference
ACR 2691 WO

IMPORTANT NOTIFICATION

International application No.
PCT/EP00/01738

International filing date (day/month/year)
28/02/2000

Priority date (day/month/year)
05/03/1999

Applicant

AKZO NOBEL N.V. et al.

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.

4. REMINDER

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

Name and mailing address of the IPEA/



European Patent Office
D-80298 Munich
Tel. +49 89 2369-0, Telex 523655 GPMU D

Authorized officer

Roche, S



PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference ACR 2691 WO	FOR FURTHER ACTION		See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
International application No. PCT/EP00/01738	International filing date (<i>day/month/year</i>) 28/02/2000	Priority date (<i>day/month/year</i>) 05/03/1999	
International Patent Classification (IPC) or national classification and IPC C07C219/06			
Applicant AKZO NOBEL N.V. et al.			

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.


2. This REPORT consists of a total of 5 sheets, including this cover sheet.

☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 4 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☒ Certain observations on the international application

Date of submission of the demand 15/09/2000	Date of completion of this report 09.07.2001
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d	Authorized officer Grammenoudi, S



INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/EP00/01738

I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

Description, pages:

1-4,6-12 as originally filed

5 as received on 25/01/2001 with letter of 24/01/2001

Claims, No.:

1 (part),2-13 as originally filed

1 (part) as received on 26/04/2001 with letter of 25/04/2001

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:
- ☐ the drawings, sheets:

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/EP00/01738

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	1-13
	No:	Claims	
Inventive step (IS)	Yes:	Claims	1-13
	No:	Claims	
Industrial applicability (IA)	Yes:	Claims	1-13
	No:	Claims	

2. Citations and explanations
see separate sheet

VIII. Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:
see separate sheet

D2= WO-A-97/47588

SECTION V

1. The present application relates to quaternary ammonium compounds having at least one ester function (esterquats) and their use as fabric softeners.
2. Document D2 cited on page 1 of the description is considered to represent the closest state of the art. It discloses esterquats of formula I and their preparation by esterifying a quaternary ammonium compound of the formula II (see D2, claim 1). The problem to be solved by the present application with respect to this prior art is to provide alternative esterquats for use as fabric softeners.
3. The esterquats of present claim 1 differ from the known compounds in that the alcohol moiety involved in group Z contains at least 4 carbon atoms whereas the corresponding moiety in the esterquats according to D2 comprises up to 3 carbon atom. In order to arrive at the claimed compounds the applicant has found that substituted amino-2-hydroxy-3-butene can be further reacted with 1-2 moles of fatty acid per mole of this product. There is no suggestion in the prior art which would have motivated the skilled person to modify the esterquats of D2 in such a manner as to arrive at the compounds of the present invention. The presently claimed compounds cannot be made by the process of D2-a totally different process must be used.

Accordingly, the subject-matter of claims 1 (quaternary ammonium compounds), 8 (compositions comprising them), 9 (a process for their production) and 12 (their use) meets the requirements of Article 33(2) and (3) PCT.

4. Dependent claims 2-6, 10-11 and 13 concern particular embodiment of claims 1, 9 and 12 respectively. Thus, they also fulfil the criteria of Art. 33(2) and (3) PCT.
5. The compounds according to claim 7 are novel intermediates which contribute to the distinguishing inventive feature of the final products which they are used to produce. Furthermore these intermediates may also be used as fabric softeners themselves. Claim 7 therefore satisfies the requirements of Art. 33(2) and (3) PCT

as well.

SECTION VIII

1. Dependent claims 2 and 3 still include isomers of the compounds claimed therein. As a result, the subject-matter of these claims extends beyond the scope claim 1 to which they refer (cf. Rule 6 PCT).

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference	FOR FURTHER ACTION see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. PCT/EP 00/ 01738	International filing date (day/month/year) 28/02/2000	(Earliest) Priority Date (day/month/year) 05/03/1999
Applicant AKZO NOBEL N.V. et al.		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 2 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing :

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☐ **Certain claims were found unsearchable** (See Box I).

3. ☐ **Unity of invention is lacking** (see Box II).

4. With regard to the **title**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No.

☐ as suggested by the applicant.

☐ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

☐ None of the figures.

INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP 00/01738

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 C07C219/06 C07C219/08 C07C215/24 C11D1/62

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C07C C11D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 97 13743 A (UNIV CALIFORNIA) 17 April 1997 (1997-04-17) abstract; claims 6,31 ---	1
A	EP 0 330 261 A (PROCTER & GAMBLE) 30 August 1989 (1989-08-30) abstract ---	1, 12, 13
A	WO 97 47588 A (CARSTENS AXEL ; AHRENS HARTMUT (DE); BERGFELD MANFRED (DE); AKZO NO) 18 December 1997 (1997-12-18) cited in the application abstract -----	1, 12, 13



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search

17 May 2000

Date of mailing of the international search report

24/05/2000

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Rufet, J

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/EP 00/01738

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 9713743	A	17-04-1997	US 5869715 A	09-02-1999
			AU 7078396 A	30-04-1997
			AU 713093 B	25-11-1999
			AU 7372996 A	17-04-1997
			CA 2233064 A	03-04-1997
			WO 9711935 A	03-04-1997
			US 5925623 A	20-07-1999
			US 5824812 A	20-10-1998

EP 0330261	A	30-08-1989	US 4840738 A	20-06-1989
			CA 1316641 A	27-04-1993
			JP 2041469 A	09-02-1990

WO 9747588	A	18-12-1997	BR 9709689 A	10-08-1999
			CA 2256450 A	18-12-1997
			EP 0918743 A	02-06-1999

INTERNATIONAL SEARCH REPORT

International Application No.
PCT/EP 00/01738

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 C07C219/06 C07C219/08 C07C215/24 C11D1/62

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C07C C11D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 97 13743 A (UNIV CALIFORNIA) 17 April 1997 (1997-04-17) abstract; claims 6,31	1
A	EP 0 330 261 A (PROCTER & GAMBLE) 30 August 1989 (1989-08-30) abstract	1, 12, 13
A	WO 97 47588 A (CARSTENS AXEL ; AHRENS HARTMUT (DE); BERGFELD MANFRED (DE); AKZO NO) 18 December 1997 (1997-12-18) cited in the application abstract	1, 12, 13

☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents :

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
- "&" document member of the same patent family

Date of the actual completion of the international search

17 May 2000

Date of mailing of the international search report

24/05/2000

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Rufet, J

INTERNATIONAL SEARCH REPORT

information on patent family members

International Application No

PCT/EP 00/01738

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 9713743	A	17-04-1997	US 5869715 A	09-02-1999
			AU 7078396 A	30-04-1997
			AU 713093 B	25-11-1999
			AU 7372996 A	17-04-1997
			CA 2233064 A	03-04-1997
			WO 9711935 A	03-04-1997
			US 5925623 A	20-07-1999
			US 5824812 A	20-10-1998
EP 0330261	A	30-08-1989	US 4840738 A	20-06-1989
			CA 1316641 A	27-04-1993
			JP 2041469 A	09-02-1990
WO 9747588	A	18-12-1997	BR 9709689 A	10-08-1999
			CA 2256450 A	18-12-1997
			EP 0918743 A	02-06-1999